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FOIA ID: F1997-066/6, D. Cohen
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DOCUMENT NO. & TYPE	SUBJECT/TITLE	DATE	RESTRICTION
4. report	re nuclear fallout from Chernobyl (w/notations), 1p <i>R 3/17/06 F97-066/6 #1</i>	n.d.	B1 B2

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- B-1 National security classified information [(b)(1) of the FOIA].
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TO:

Collection: Baker, Howard H. Jr.: Files

Series: I. Subject File

File Folder Title: [Chernobyl]

Box Number: 2

Transferred by: KELLY D. BARTON Date: 12/4/02

NUCLEAR FALLOUT FROM CHERNOBYL COMPARED TO
FALLOUT FROM A NUCLEAR WEAPONS EXCHANGE

Comparisons between fallout from Chernobyl and fallout from a nuclear weapons exchange are complicated by the fact that a different type of fallout is involved in the two cases. In the case of a power plant reactor, the composition of fission products builds up over a lengthy period of time. In a nuclear weapon, the products are released in a millisecond of time.

For this reason, the most meaningful comparison is on the basis of certain long-life isotopes which are particularly harmful to the human system. The best example for this purpose is Cesium 137, which has a half life of 30 years, and is very biologically active. A 500 kiloton nuclear weapon puts out .7 megacuries of Cesium 137. The Chernobyl incident resulted in the discharge of about 3 megacuries of Cesium 137. Using these figures, an exchange of 24,000 nuclear weapons would be equivalent to approximately 5600 Chernobyls.

Other estimates of Cesium 137 release at Chernobyl extend as high as 8 megacuries. Using this measure, an exchange of 24,000 nuclear weapons would be equivalent to approximately 2100 Chernobyls.

These figures, of course, are dependent on the size of the nuclear weapon -- in terms of yield. If we assume a weapon yield of 300 kilotons, rather than 500, then an exchange of 24,000 nuclear weapons would be equivalent to approximately 1400 Chernobyls.

Thus a reasonable range of figures for a 24,000 weapon exchange would run from a low estimate of 1400 Chernobyls to a high estimate of 5600 Chernobyls.

The distribution of fallout would be different in the nuclear weapons and Chernobyl cases as well. In the Chernobyl case, the radioactive material was put into the atmosphere by a smoke plume from the fire at the power station. Almost all of the material landed within 1000 kilometers of the station. In the case of a nuclear weapon, radioactive material would be propelled to much higher altitudes by the nuclear explosion, and the fallout would cover a wider area as a result.

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